UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
William L. Massey, Linda Breathitt,
and Nora Mead Brownell.

Erie Boulevard Hydropower, L.P. Project Nos. 2320-005 and 012

ORDER ISSUING NEW LICENSE

(Issued February 13, 2002)

Niagara Mohawk Power Corporation (Niagara) filed an application for a new major license pursuant to Sections 15 and 4(e) of the Federal Power Act (FPA)[1] to continue operation and maintenance of the 47,073-kilowatt (kW) Middle Raquette River Project No. 2320. The project is located on the Raquette River in St. Lawrence County, New York. Subsequently, the Commission approved the transfer of this license from Niagara to Erie Boulevard Hydropower, L.P. (Erie) and the substitution of Erie as the applicant in the related relicensing proceeding.[2]

The application for Project No. 2320 is one of four applications filed by the licensee to relicense four of its projects on the Raquette River.[3] We are concurrently issuing four orders granting new licenses for these projects.[4] Issuance of a license for the Middle Raquette River Project serves the public interest because it authorizes continued

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[1]16 U.S.C. §§ 808 and 797(e).

[2]88 FERC ¶ 62,082 (1999). Erie is a limited partnership formed for the purpose of purchasing and operating the hydroelectric generating plants it purchased from Niagara. The substitution of Erie as relicense applicant includes the substitution of Erie as a party to the Settlement Agreement that is discussed infra..

[3]In addition to the Middle Raquette River Project No. 2320, the licensee filed applications for the Lower and Upper Raquette River Project Nos. 2330 and 2084, respectively, and the Carry Falls Project No. 2060. These licenses were also transferred to Erie. Id.

[4]98 FERC ¶¶ 61, (Project No. 2330); 61, (Project No. 2084); and 61, (Project No. 2060).

operation of a project that is best adapted to the comprehensive development of the Raquette River Basin for all beneficial purposes in accordance with the requirements of FPA Section 10(a)(1).[5]

BACKGROUND

The original license for the Middle Raquette River Project was issued in 1964,[6] with an expiration date of December 31, 1993. Since the license expired, the project has operated under annual licenses.[7] The licensee filed its new license application in 1991.

Notice of the relicense application was issued, soliciting comments, protests, and motions to intervene. The U.S. Department of the Interior (Interior), Adirondack Mountain Club (Mountain Club), New York State Adirondack Park Agency (Park Agency), the New York Department of Environmental Conservation (NYSDEC) and, jointly, New York Rivers United (Rivers United), American Whitewater, American Rivers, the Adirondack Council, the Association for the Protection of the Adirondacks, the National Audubon Society of New York and the Natural Heritage Institute filed motions to intervene in the proceeding.

On April 22, 1998, the licensee filed a Settlement Agreement (Settlement) that addresses issues pertaining to the four Raquette River projects and is signed by seventeen participants in a collaborative proceeding:[8] the licensee, NYSDEC, the U.S. Department of the Interior's Fish and Wildlife Service (FWS), the Park Agency, the Mountain Club, Rivers United, American Canoe Association, American Rivers, American Whitewater, National Audubon Society of New York State, the National Park Service, New York State Conservation Council, North Country Raquette River Advocates, St. Lawrence County, The Adirondack Council, The Association for the Protection of the Adirondacks, and The Jordan Club.[9]

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[5]16 U.S.C. § 803(a)(1).

[6]31 FPC 1549.

[7]See Section 15(a)(1) of the FPA, 16 U.S.C. § 808(a)(1).

[8]"Settlement Offer - March 13, 1998, Raquette River Projects, FERC Project Numbers 2060, 2084, 2320, and 2330."

[9]The New York Power Authority and the New York Council of Trout Unlimited participated in the Settlement, and, although they had no objections, they chose not to

(continued...)

The Settlement provides for minimum flows releases, limitations on impoundment fluctuations, and fish passage and protection measures to protect and enhance the water quality and fishery resources of the Raquette River. It also provides for whitewater recreation opportunities at the Middle Raquette Project and additional recreation facilities to enhance the recreational opportunities of the area in a manner that is consistent with the undeveloped nature of the projects' surroundings. These measures are described in detail in the order approving the Settlement and issuing a new license for the Lower Raquette River Project No. 2330 (lead order), one of the four relicense orders issued today for the Raquette River projects.[10]

On January 28, 1999, Erie, consistent with the Settlement, revised its pending application to withdraw its proposals for adding certain recreation facilities and all but one of its proposals for adding generating capacity.[11]

On June 16, 2000, Commission staff issued for comment a draft Multiple Project Environmental Assessment (draft EA) that evaluated the potential environmental impacts of the continued operation of the four projects.[12] Interior, NYSDEC, the Tribe, Mountain Club, and Erie filed comments on the draft EA. On April 18, 2001, Commission staff issued a final EA (EA). The EA concludes that relicensing the four projects will not have a significant adverse impact on the quality of the human environment and recommends issuance of new licenses as proposed in the applications and the Settlement.[13] The Commission has considered all the comments and interventions in determining whether, and under what conditions, to issue this relicense.

PROJECT DESCRIPTION

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[9](...continued)
become signatories.

[10]98 FERC ¶ 61,

[11]See Settlement, Section 2.16.

[12]The EA also considered the potential environmental impact of amending the exemption held by the village of Potsdam for the Potsdam Water Power Project No. 2869.

[13]The Mountain Club, Interior, and NYSDEC filed comments in support of this recommendation.

The Raquette River, with a drainage basin of 1,269 square miles, originates in the Adirondack Mountains, flows generally north-northwest for more than 120 miles, and empties into the St. Lawrence River near Massena, New York.[14] Most of the basin is sparsely populated, with much of the land forested and brushland. The region's economy depends primarily on recreational tourism and timber-based industries.

The project consists of four developments (from upstream to downstream): Higley, Colton, Hannawa, and Sugar Island. The four developments have a total installed capacity of 47,073 kW and are all located in an 11-mile reach of the Raquette River commencing 38 miles above its confluence with the St. Lawrence River.

The Higley development includes a 34-foot-high dam with 3-foot-high flashboards, two flood gates, a trashrack, two waste gates; a 742-acre reservoir; a 160-foot-long, 50-foot-wide intake; and a powerhouse containing three generating units with a total capacity of 4,972 kW. On October 14, 2001, one of the generating units ceased operation due to turbine failure. Erie proposes to construct a new 13-foot-diameter, 225-foot-long steel intake pipeline and a new powerhouse containing one generating unit with a capacity of 7,300 kW. The existing powerhouse will be retired.

The Colton development includes a 27-foot-high dam with 2-foot-high flashboards, a log flume, a trash gate, and a gated spillway; a 195-acre-reservoir; an 11,090-foot-long steel pipeline; three penstocks; and a powerhouse containing three generating units with a total capacity of 30,101 kW.

The Hannawa development has a 38-foot-high dam with 3.5-foot-high flashboards, a log chute, a Taintor gate, and a sluice gate; a 204-acre reservoir; a 2,700-foot-long canal; two penstocks; and a powerhouse containing two generating units with a total capacity of 7,200 kW.

The Sugar Island development has a 37-foot-high dam with two Taintor gates; a 29-acre reservoir; an intake structure with trash racks and a headgate; a 4,700-foot-long steel pipeline; two penstocks; and a powerhouse containing two generating units with a total capacity of 4,800 kW.[15]

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[14]The Raquette River is a navigable waterway of the United States. 8 FPC 569 (1949).

[15]A more detailed project description is contained in ordering paragraph B(2).

As currently licensed, and as proposed to be relicensed, these developments, except for Higley, are operated run-of-river with pondage mode using releases from the Carry Falls and the Upper Raquette River Projects.[16] The Higley development operates as a re-regulating development to provide steadier flows for the downstream hydropower developments.

WATER QUALITY CERTIFICATION

Under Section 401(a)(1) of the Clean Water Act (CWA),[17] the Commission may not issue a license for a hydroelectric project unless the state water quality certifying agency has issued a water quality certification for the project or has waived certification. Section 401(d) of the CWA provides that state certification shall become a condition of any federal license or permit that is issued.[18] Only a reviewing court can revise or delete these conditions.[19]

NYSDEC issued water quality certification for the Middle Raquette Project on June 11, 1998.[20] As discussed in the lead order, the certification includes standard terms and conditions and the "terms and conditions of the . . . Settlement."[21] We have appended to this license the water quality certification, which includes the standard terms and conditions thereof and the requirements of the Settlement that are applicable to this project. Ordering Paragraph D of this order incorporates the requirements of the Appendix as conditions of the license.[22]

SETTLEMENT

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[16] This means that the licensee uses/releases flows received from upstream developments and in addition may use/release water stored in the reservoir (pondage), subject to drawdown limitations.

[17] 33 U.S.C. § 1341 (a)(1).

[18] 33 U.S.C. 1341(d).

[19] See American Rivers v. FERC, 129 F.3d. 99 (D.C. Cir. 1997).

[20] The certification was filed by the licensee on June 22, 1998.

[21] See Water Quality Certification section of lead order.

[22] All conditions referenced in the license's ordering paragraphs are equally part of the license, whether they are explicitly set forth or incorporated by reference.

As discussed in the lead order, because the Settlement is also a condition of the water quality certifications issued for the projects, we must, giving equal consideration to developmental and environmental values, determine whether the project proposal, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

Pursuant to the Settlement, Erie proposes to release minimum flows from each of the developments as follows:

(1) from Higley, a 20-cubic-feet-per-second (cfs) year-round flow through the stoplog section of the dam to facilitate downstream movement of fish;

(2) from Colton, 110 cfs from November 1 through the start of walleye spawning season, 200-240 cfs during the walleye spawning season, 200 cfs from the end of the walleye spawning season through June, 125 cfs from July 1 to August 15, 90 cfs from August 16 to September 15, and 125 cfs from September 16 through October 31;

(3) from the stoplog section of the Hannawa dam, 50 cfs from October 31 through the start of walleye spawning season, 90 cfs for the walleye spawning season through June 30, and 65 cfs from July 1 through October 31; and

(4) from Sugar Island, 300 cfs year-round from the minimum flow pipe, with an increase to 400 cfs from the start of the walleye spawning season through June 30.

In addition, to protect and enhance project-related environmental resources, Erie proposes to:

(1) limit normal reservoir fluctuations, according to a seasonal regime at Higley, to provide regulating flows and recreational opportunities;

(2) limit normal reservoir fluctuations at Colton and Hannawa to no more than 0.4 feet, and at Sugar Island to no more than 1.0 foot;

(3) provide additional measures to facilitate downstream fish movement at the Higley, Colton, and Hannawa developments;

(4) provide a 1-inch clear spacing physical barriers at the location of the existing trashrack structures at Higley, Colton, and Hannawa;

(5) provide scheduled whitewater releases, a flow notification system, and access trails at Colton, Hannawa, and Sugar Island;

(6) develop a recreation plan to provide a canoe portage at each development, a whitewater access at Colton, Hannawa, and Sugar Island, a car-top boat launch with overnight parking at Colton, a scenic overlook, picnic facilities, and roadside parking at Hannawa, and a day use area at Sugar Island; and

(7) modify the project boundary to include all Erie lands that will be occupied by these recreational facilities.

In the lead order, we approve the Settlement and conclude, giving equal consideration to developmental and environmental values, that the Middle Raquette River Project, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

OTHER LICENSING CONSIDERATIONS

As discussed in the lead order, in issuing this license, we have complied with the following requirements.

A. Coastal Zone Management Act (CZMA)

The Middle Raquette River Project is not within New York's coastal zone, so no consistency determination under CZMA Section 307(c)(3)(A)[23] is required.

B. Historic Properties under the National Historic Preservation Act

[23] 16 U.S.C. § 1456(c)(3)(A).

On February 6, 2002, the New York State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (Advisory Council), and the Commission executed a Programmatic Agreement for managing historic properties that may be affected by the relicensing of the four Raquette River Projects.[24] The licensee, Interior's Bureau of Indian Affairs, and the St. Regis Mohawk Tribe signed as concurring parties. The PA satisfies the Commission's responsibilities under Section 106 of the National Historic Preservation Act.[25]

C. Endangered Species Act (ESA)

ESA Section 7(a)[26] requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally-listed threatened and endangered species, or result in the destruction or adverse modification of their critical habitat. Continued operation of the project, as conditioned by the Settlement, will not affect federally-listed threatened or endangered species.[27]

D. Fishway Prescriptions under FPA Section 18[28]

As requested by Interior, this license (Article 403) reserves the Commission's authority to require Erie to construct, operate, and maintain such fishways as Interior may prescribe.

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[24]"Amendment to the 1996 Programmatic Agreement among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and the New York State Historic Preservation Officer for Managing Historic Properties That May Be Affected by Licenses Issued for the Continued Operation and Management of Four Raquette River Hydroelectric Projects in Upstate New York."

[25]16 U.S.C. § 470s.

[26]16 U.S.C. § 1536(a).

[27]The threatened bald eagle is known to occur within the boundaries of the Middle Raquette Projects only as a transient species, and thus will not be affected by continued project operation.

[28]16 U.S.C. § 811.

E. FPA Section 10(j) Fish and Wildlife Recommendations[29]

Interior submitted recommendations under FPA Section 10(j) for the Middle Raquette River Project on September 9, 1999, and the conditions of this license are consistent with those recommendations.

F. FPA Sections 10(a)(2)(C) and 15(a) Applicant's Plans and Capabilities[30]

We have determined that Erie's record as a licensee is adequate with respect to the following: (A) conservation efforts; (B) compliance history and ability to comply with the new licenses; (C) safe management, operation, and maintenance of the projects; (D) ability to provide efficient and reliable electric service; (E) need for power; (F) transmission service; (G) cost effectiveness of plans; (H) actions affecting the public; and (I) ancillary services.

G. FPA Section 10(a)(2) Comprehensive Plans[31]

We evaluated the Middle Raquette Project's consistency with federal and state comprehensive plans and found no conflicts.

ECONOMIC BENEFITS OF PROJECT POWER

Sections 4(e) and 10(a)(1) of the FPA[32] require the Commission, in acting on license applications, to give equal consideration to the developmental and environmental uses of the waterway on which a project is located. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or

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[29]16 U.S.C. § 803(j)(1).

[30]16 U.S.C. §§ 803(a)(2)(C) and 808(a).

[31]16 U.S.C. § 803(a)(2)(A).

[32]16 U.S.C. §§ 797(e) and 803(a)(1).

developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

In determining whether a proposed project will be in the public interest, the Commission considers the economic benefits of project power. As was articulated in Mead Corp.,[33] we employ an analysis that uses current costs to compare the costs of the project and likely alternative power, with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the analysis is to provide general estimates of the potential power benefits and costs of a project, and reasonable alternatives to project power.

As proposed by Erie, including the 2.3 MW additional capacity, staff estimates that the annual cost of the project would be about $12,285,440 (41.05 mills/kWh). The annual power benefit would be $8,327,550 (27.82 mills/kWh) for the estimated annual generation of 299.31 GWh. The resulting annual net benefit would be negative $3,957,890 (-13.23 mills/kWh).

The new license for the Middle Raquette River project No. 2320, as conditioned herein, authorizes Erie to continue to produce needed power and will not result in any major, long-term adverse environmental impacts. In addition, the new license includes numerous enhancements to aquatic and terrestrial environments and recreation.

LICENSE TERM

Section 15(e) of the FPA[34] provides that any new license issued shall be for a term of not less than 30 years nor more than 50 years. The Commission's general policy is to establish 30-year terms for projects with little or no redevelopment, new construction, new capacity, or environmental mitigative and enhancement measures; 40-year terms for projects with a moderate amount of such activities; and 50-year terms for projects with extensive measures. The Settlement establishes the common new license expiration for the Raquette River Projects as December 31, 2033. That becomes a mandatory condition of this license by dint of the Settlement's inclusion in the water quality certification for this project. Accordingly, we will issue the new license for this term.

The Commission orders:

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[33] 72 FERC ¶ 61,027 (1995).

[34] 16 U.S.C. § 808(e).

(A) This license is issued to Erie Boulevard Hydropower, L.P. (licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate, and maintain the Middle Raquette River Hydroelectric Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G, filed December 24, 1991, and April 28, 2000:[35]

Exhibit G Drawing	FERC No. 2320-	Showing
G-1	1001	Higley - Development Detailed Map, Sheet 5A
G-2	1002	Higley - Development Detailed Map, Sheet 6A
G-3	1003	Colton - Project Boundary and Location Map
G-4	1004	Colton - Project Boundary and Location Map
G-5	1005	Hannawa - Project Boundary and Location Map
G-6	1006	Sugar Island - Project Boundary and Location Map

(2) Project works consisting of four developments:

The Higley development comprising: (a) a 34-foot-high concrete gravity dam with 3-foot-high wooden flashboards, a 209-foot-long concrete gravity ogee-crested spillway, two flood gates, eight steel forebay gates each measuring 12 feet high by 5 feet, 9 inches wide, a trashrack, and two 10-foot-high by 8-foot-wide waste gates; (b) a 742-acre reservoir at normal pool elevation 883.6 feet above mean sea level (msl); (c) a 160-foot-long by 50-foot-wide flume formed by concrete retaining walls on each side; (d) a powerhouse

[35]Exhibits G-1 and G-2 were approved in an order approving revised exhibits, 92 FERC ¶ 62,178 (2000).

measuring 64 feet to a side by 38 feet high containing three generating units with a total capacity of 4,972 kilowatts (kW); (e) an intake structure with a 14 x 14 foot headgate, a 13-foot-diameter, 225-foot-long steel pipeline, and a powerhouse measuring 90 feet long and 53 feet wide containing a 7,300 kW generating unit; and (f) appurtenant electrical and mechanical facilities.

The Colton development comprising: (a) a 27-foot-high concrete gravity dam with 2-foot-high flashboards, an 8-foot-wide log flume, a trash gate, and a 204.67-foot-long ogee-crested spillway equipped with a single taintor gate measuring 10 feet high and 25 feet wide; (b) a 195-acre reservoir at normal pool elevation 837.0 feet msl; (c) a concrete intake structure with a brick superstructure, which measures 50 feet wide by 30 feet long by 12 feet high overall, equipped with a motor driven, 16-foot-high by 25.5-foot-wide, taintor gate; (d) a steel pipeline, 11,090 feet long with a diameter of 13.5 feet and 2,100 feet long with a diameter of 12 feet; (e) a 80-foot-high Johnson differential surge tank; (f) three penstocks of lengths 160 feet, 140 feet, and 125 feet, and diameters of 7.5 feet, 7.5 feet, and 9 feet respectively; (g) a brick and structural steel powerhouse measuring 165 feet long and 46 feet wide containing three generating units with a total capacity of 30,101-kW; and (h) appurtenant electrical and mechanical facilities.

The Hannawa development comprising: (a) a 38-foot-high stone and concrete dam with 3.5-foot-high wooden flashboards, a log chute, a motor operated taintor gate measuring 14 feet high by 28 feet wide, an ogee-crested spillway, and a sluice gate; (b) a 204-acre reservoir at normal pool elevation 552.0 feet msl; (c) a headworks structure with five sliding timber gates, all of which are 18 feet high, three are 9.7 feet wide, one is 9 feet wide, and one is 8.8 feet wide; (d) a 2,700-foot-long canal measuring 30 feet wide at the bottom, 120 feet wide at the top, and an average of 22 feet deep, equipped with trashracks that completely cover the canal entrance; (e) two 10-foot-diameter penstocks of 190 feet in length; (f) a sandstone and structural steel powerhouse measuring 66 feet wide by 248 feet long by 40 feet high containing two generating units with a total capacity of 7,200-kW; and (g) appurtenant electrical and mechanical facilities.

The Sugar Island development comprising: (a) a 37-foot-high concrete gravity dam with two taintor gates and a 192-foot-long spillway; (b) a 29-acre reservoir at normal pool elevation 470.0 feet msl; (c) a concrete and brick intake structure with trashracks and a steel headgate measuring 14 feet wide by 16 feet high; (d) a 4,700-foot-long steel pipeline; (e) a 71-foot-high surge tank; (f) two 8-foot-diameter penstocks; (g) a brick and structural steel powerhouse measuring 35 feet wide by 67 feet long by 30 feet high containing two generating units with a total capacity of 4,800-kW; and (f) appurtenant electrical and mechanical facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A: The following Exhibit A sections, filed on December 24, 1991:

Pages A-3 to A-23, describing the existing and proposed mechanical, electrical, and transmission equipment.

Exhibit F: The following Exhibit F drawings, filed on December 24, 1991:

Exhibit F Drawing	FERC No. 2320-	Showing
F-1	1007	Higley - Dam, Intake, and Powerhouse
F-2	1008	Colton - General Plan and Profile
F-3	1009	Colton - Dam and Intake
F-4	1010	Colton - Surge Tank and Powerhouse
F-5	1011	Hannawa - Dam, Intake, and Canal
F-6	1012	Hannawa - Forebay, Intake, Penstocks, Powerhouse
F-7	1013	Hannawa - Forebay, Intake, Penstocks, and Powerhouse
F-8	1014	Sugar Island - General Plan and Profile
F-9	1015	Sugar Island - Dam, Surge Tank, and Powerhouse

(3) All of the structures, fixtures, equipment, or facilities used to operate or maintain the project and located within the project boundary; all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights necessary or appropriate in the operation or maintenance of the project.

(C) The Exhibits A, F, and G described above are approved and made part of the license.

(D) This license is subject to the water quality certification conditions submitted by the New York State Department of Environmental Conservation pursuant to Section 401(a) of the Clean Water Act, as those conditions are set forth in the Appendix to this order.

(E) This license is subject to the articles set forth in Form L-3 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States," and the following additional articles.

Article 201. The licensee shall pay the United States the following annual charges:

(a) Effective the first day of the month in which the license is issued, for purposes of reimbursing the United States for the costs of administering Part I of the Federal Power Act, a reasonable amount as determined in accordance with the provisions of the Commissioner's regulations in effect from time to time. The authorized installed capacity for this purpose is 47,073 kilowatts (kW).

(b) For purposes of reimbursing the United States for the costs of administering Part I of the Federal Power Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time for the authorized additional capacity of 2,328 kilowatts. This annual charge shall be effective as of the date of commencement of construction of the new capacity.

Article 202. Pursuant to Section 10(d) of the Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one-half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserved account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly included in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 202. Pursuant to Section 10(d) of the Federal Power Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one-half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserved account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly included in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. Within 45 days of the date of issuance of the license, the licensee shall file three original sets of the approved exhibit drawings. The drawings must be reproduced on silver or gelatin 35mm microfilm. All microfilm must be mounted on type D (3-1/4" x 7-3/8") aperture cards. The licensee shall submit one copy of Form FERC-587 with the aperture cards.

Prior to microfilming, the FERC Drawing Number (2320-1 to 2320-15) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number must be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (e.g., F-1, G-1), Drawing Title, and date of this license must be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards must be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set of aperture cards shall be filed with the Commission's New York Regional Office.

Article 204. If the Middle Raquette River Project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage

reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.

Article 301. The licensee shall commence construction of the Higley development powerhouse and penstock within two years from the issuance date of the license and shall complete construction of these facilities within four years from the issuance date of the license.

Article 302. Before starting construction, the licensee shall review and approve the design of contractor-designed cofferdams and deep excavations and shall make sure construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of the cofferdam, the licensee shall submit one copy to the Commission's Regional Director and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, Division of Dam Safety and Inspections), of the approved cofferdam construction drawings and specifications and the letters of approval.

Article 303. The licensee shall, at least 60 days prior to the start of construction, submit one copy to the Commission's Regional Director and two copies to the Commission (one of these shall be a courtesy copy to the Commission's Director, Division of Dam Safety and Inspections), of the final contract drawings and specifications for pertinent features of the project, such as water retention structures, powerhouse, and water conveyance structures. The Commission may require changes in the plans and specifications to assure a safe and adequate project. If the licensee plans substantial changes to location, size, type, or purpose of the water retention structures, powerhouse, or water conveyance structures, the plans and specifications must be accompanied by revised Exhibit F and G drawings, as necessary.

Article 304. At least 60 days prior to the commencement of the construction at the Higley development that is authorized by this license, the licensee shall file for Commission approval a site-specific erosion and sediment control plan to protect water quality in the Raquette River.

The licensee shall prepare the plan after consultation with the New York State Department of Environmental Conservation (NYSDEC). The plan shall include documentation of consultation, copies of comments and recommendations on the

completed plan after it has been prepared and provided to the NYSDEC and specific descriptions of how its comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the NYSDEC to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 305. Within 180 days after completion of construction of the new facilities authorized by this license (e.g., fish passage, recreation and access facilities, and Higley development additions), the licensee shall submit, for Commission approval, revised Exhibits A, F, and G, if necessary, to show those project facilities as built. The licensee shall file six copies to the Commission, one copy to the Commission's New York Regional Director, and one copy to the Director, Division of Hydropower Administration and Compliance, Office of Energy Projects.

Article 401. The licensee shall develop an Annual Report to be filed for Commission approval on or before April 15 of each year. The report will provide a summary of the measures implemented, any plans developed pursuant to the requirements of this license and assess resource benefits gained in the previous calendar year. The report shall also include a summary of key actions, tasks, and measures to be undertaken in the current calendar year. In the event that there are any unresolved issues with regard to the implementation of the conditions of this license, the report will include an explanation of such issues. The Commission reserves the right to make changes to the report.

Article 402 . Within six months of the effective date of this license, the licensee shall file for Commission approval a streamflow monitoring plan to ensure compliance with minimum flows required by Section 3.3.3, and with reservoir fluctuation limitations required by Section 4.3.3. The plan, at a minimum, shall include the measures developed under Section 10.5 of the Appendix.

The plan shall include documentation of consultation with the U.S. Fish and Wildlife Service (FWS) and the New York Department of Environmental Conservation (NYSDEC) and copies of any agency comments. The licensee shall allow a minimum of 30 days for NYSDEC and FWS to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on site-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 403. Authority is reserved by the Commission to require the licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance, of such fishways as may be prescribed by the Secretary of the Interior under Section 18 of the Federal Power Act.

Article 404 . Within one year of license issuance, the licensee shall file for Commission approval a recreation plan. The plan, at a minimum, shall include the measures developed under Section 7.3.3 of the Appendix. In addition, the plan shall include: provisions for continued maintenance of the existing recreational facilities at the four developments as listed in Table 7.1 of the Appendix; (2) final site plans for the new recreational facilities; (3) erosion and sediment control measures for construction activities, if appropriate; (4) locations for directional signage, determined in consultation with the New York State Department of Environmental Conservation; and (4) an implementation schedule consistent with Section 2.2.3 and Table 2-1 of the Appendix.

The licensee shall prepare the recreation plan in consultation with the Raquette River Advisory Committee (RRAC).[36] The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the RRAC, and specific descriptions of how the RRAC's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the RRAC to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. No ground disturbing or land-clearing activities for new recreation facilities shall begin until the licensee is notified the plan is approved. Upon approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 405. The licensee shall implement the "Amendment to the 1996 Programmatic Agreement Among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and the New York State Historic Preservation Officer for Managing Historic Properties That May Be Affected By Licenses Issued for the Continued

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[36]The Settlement (Section 10.1 and Appendix 2) describes the RRAC.

Operation of Four Raquette River Hydroelectric Power Projects in Upstate New York" executed on February 6, 2002, including but not limited to the Historic Properties Management Plan (HPMP) for the project. In the event that the Programmatic Agreement is terminated, the licensee shall implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the Programmatic Agreement is terminated, the licensee shall obtain approvals from or make notifications of the Commission or State Historic Preservation Officer where the HPMP calls upon the licensee to do so.

Article 406. In the event the licensee is unable to comply with the requirements of this license regarding instream flows, normal impoundment fluctuations, and fish passage and protection, the licensee shall notify the Commission, as soon as possible, but no later than 10 days after each such incident.

When instream flows, normal impoundment fluctuations, fish passage and protection, and whitewater release requirements of the license are modified pursuant to Appendix Sections 3.4.1, 4.4.1, 6.4.1, and 8.4.1, respectively, the licensee shall notify the Commission no later than 10 days after each such incident.

Article 407. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can

accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and Federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary Federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not

discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary Federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any Federal or state agency official consulted, and any Federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee shall consult with Federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is final unless a request for rehearing is filed within 30 days of the date of its issuance, as provided in Section 313 of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

By the Commission.

(S E A L)

Magalie R. Salas,
Secretary.

Appendix
State of New York Water Quality Certification

New York State Department of Environmental Conservation
Division of Environmental Permits, Room 538
50 Wolf Road, Albany, New York 12233-1750
Phone: (518) 457-2224 FAX: (518) 457-7759

John P. Cahill
Commissioner

June 11, 1998

Mr. Michael W. Murphy, Esq.
Law Department
Niagara Mohawk Power Corporation
300 Erie Boulevard West, A-3
Syracuse, New York 13202

RE: Lower Raquette River Project, FERC #2330 / DEC # 4099-00006/00001
Middle Raquette River Project, FERC #2320 / DEC # 4099-00007/00001
Water Quality Certificate

Dear Mr. Murphy:

The Department of Environmental Conservation (the Department) hereby certifies that, based on our review of all pertinent information presented by Niagara Mohawk Power Corporation (NMPC) in its application for federal licenses for the Lower Raquette River and Middle Raquette River Hydroelectric Projects and the Settlement Agreement dated March 13, 1998, NMPC has provided reasonable assurance that the subject Projects will comply with all applicable effluent standards, standards of performance and other state statutes, regulations and criteria applicable to the affected waterbody as required by the State regulatory provisions implementing Section 401 of the Federal Water Pollution Control Act.

This certification is issued pursuant to Section 401 of the Federal Water Pollution Control Act, 33 U.S.C. 1341. The Department makes this certification provided that the attached standard conditions are met, as well as the terms and conditions of the attached Settlement Agreement signed by the Department, NMPC, the U.S. Fish and Wildlife Service, the National Park Service, New York Rivers United, the Adirondack Mountain

Club, the Adirondack Park Agency, the National Audubon Society, the American Whitewater Affiliation, American Rivers, the New York State Conservation Council, the Adirondack Council, American Canoe Association, the Jordan Club, the Association for the Protection of the Adirondacks, North Country Raquette River Advocates and St. Lawrence County insofar as those terms and conditions relate to all applicable effluent standards, standards of performance and other state statutes, regulations and criteria applicable to the affected waterbody as required by the State regulatory provisions implementing Section 401 of the Federal Water Pollution Control Act. The terms and conditions of this Settlement describe the operations of the four developments comprising the Lower Raquette River Project, and the four developments comprising the Middle Raquette River Project, located in the Towns of Norfolk, Potsdam, Pierrepont, Parishville and Colton, in St. Lawrence County.

Pursuant to the regulations of the Department at 6 NYCRR §621.14, the Department reserves the right to modify, suspend or revoke the Certification(s), or parts thereof, if there are material changes proposed for facilities or operations under the new license(s) such that amendment of one or both licenses is required; or in the event the referenced applications) or Settlement Agreement are materially amended or modified, as defined by regulations of the Federal Energy Regulatory Commission at 18CFR §4.30(b)14 and 4.35 (f), respectively.

Sincerely,

/s/

Jeffrey J. Sama
Division of Environmental Permits

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
STANDARD WATER QUALITY CONDITIONS

A. OVERSIGHT AND ADMINISTRATION

Inspections

The projects, including relevant records, are subject to inspection at reasonable hours and intervals, upon reasonable notice to the certificate holder, by an authorized representative of the Department to determine whether the certificate holder is complying with this certification. A copy of this certification, including all referenced maps, drawings, and special conditions must be available for inspection by the Department during such inspections at the project.

B. PROJECT MAINTENANCE AND CONSTRUCTION

1. Maintenance Dredging

The certificate holder shall curtail generation and install stoplogs or otherwise shut off flow through the turbine(s) prior to commencing any maintenance dredging activities in any intake/forebay area.

2. Sediment Analysis and Disposal

The certificate holder must sample any sediments to be disturbed or removed from the projects' waters and test them for contaminants. Sampling and testing shall be accomplished according to a protocol submitted to and approved by the Department beforehand. Prior to dredging or other excavation, the certificate holder must secure Department approval for all disposal locations for any sediments to be removed from the project waters.

3. Erosion and Sediment Control

Prior to commencing activities which could adversely affect water quality, the certificate holder must receive Department approval of an Erosion and Sediment Control Plan. This plan must be submitted at least 60 days before the intended date for commencing work. Actions undertaken in response to an emergency and governed by the procedures contained in 6 NYCRR Section 621.12 are exempt from this condition. At minimum, the certificate holder must:

a. isolate instream work from the flow of water and prevent discolored (turbid) discharges and sediments from entering the waters of the river due to excavation, dewatering and construction activities.

b. avoid using heavy construction equipment below the mean high water line of the river until the work area is protected by an approved structure and dewatered.

c. stabilize any disturbed banks by grading to an appropriate slope, followed by armoring or vegetating as appropriate, to prevent erosion and sedimentation into the waterbody.

d. minimize soil disturbance, provide appropriate grading and temporary and permanent revegetation of stockpiles and other disturbed areas to minimize erosion/sedimentation potential.

e. install and maintain, in a fully functional condition, effective erosion control measures on the downslope of all disturbed areas before commencing any other soil disturbing activities.

f. protect all waters from contamination by deleterious materials such as wet concrete, gasoline, solvents, epoxy resins or other materials used in construction, maintenance and operation of the project.

g. ensure complete removal of all dredged and excavated material, debris, or excess materials from construction from the bed and banks of all water areas to an approved upland disposal site.

h. ensure that all temporary fill and other materials placed in the waters of the river are completely removed upon completion of construction unless otherwise directed by the Department.

4. Placement of cofferdams, construction of temporary access roads or ramps, or other temporary structures which encroach upon the bed or banks of the river.

The design of all such structures will be developed in accordance with Condition #3 (above).

5. Maintenance of River Flow

During all periods of construction, the certificate holder shall maintain adequate flows immediately downstream of work sites to ensure that the water quality standards established for the water body are met.

6. Turbidity Monitoring

During all periods of construction, the certificate holder will monitor the waters of the river at a point immediately upstream of project activities and at a point no more than 100 feet downstream from any discharge point or other potential source of turbidity. If at any time, turbidity measurements from the downstream locations exceed the measurements from the locations upstream of the work areas, certificate holder specifically agrees to immediately take all action necessary to identify the activities causing the turbidity and to correct the situation.

7. Notifications

At least two (2) weeks prior to commencing any work subject to conditions 2 through 6 of this certificate, the certificate holder shall provide written notification to:

Regional Permit Administrator
New York State Department of Environmental Conservation
Division of Environmental Permits
317 Washington Street
Watertown, New York 13601

TERMS AND CONDITIONS FROM SETTLEMENT DATED MARCH 13, 1998

2.0 GENERAL AGREEMENTS

2.1 ABBREVIATIONS AND CONVENTIONS

The following abbreviations will be used throughout this document:

ADK = Adirondack Mountain Club
AGC = Automatic Generation Control
AIR = Additional Information Request
APA = Adirondack Park Agency
AWA = American Whitewater Affiliation
cfs = Cubic feet per second
DOI = Department of the Interior
FERC = Federal Energy Regulatory Commission
FPA = Federal Power Act
FWMA = Fish and Wildlife Management Act
MW = Megawatt
NEPA = National Environmental Policy Act

NGO = Non-Governmental Organization(s)
NIMO = Niagara Mohawk,
or licensee = Niagara Mohawk Power Corporation
NPS = National Park Service
NYRU = New York Rivers United
NYSCC = New York State Conservation Council
NYSDEC = New York State Department of Environmental Conservation
NY/TU = New York Council, Trout Unlimited
RRAC = Raquette River Advisory Council
SHCC = System Hydro Control Center
SLCPO = St. Lawrence County Planning Office
State = State of New York (or, People of the State of New York)
USFWS = United States Fish and Wildlife Service
USGS = United States Geological Survey
§ 401 WQC = Water Quality Certification issued by NYSDEC under § 401 of the federal Clean Water Act

The following conventions and definitions will be used throughout this document:

- Bypass Reach - That portion of the original river bed fully, or partially, dewatered as a result of the diversion of water.

- Elevation - Elevation as presented in this document is in feet USGS unless otherwise specified.

- Instream Flow - Any seasonal, or year round, intentional continuous release of flow into a bypass reach.

- Orientation - Description of the location of facilities and features is identified according to river right and river left. That is the direction if one is facing downstream.

2.2.3 IMPLEMENTATION SCHEDULE

Table 2-1 defines the schedule to implement enhancement measures agreed upon within this Settlement. The schedule is based upon an expected license issuance by December 31, 1999, for the Middle and Lower Raquette River Hydroelectric Projects and by January 31, 2001, for the Carry Falls and Upper Raquette River Hydroelectric Projects. Unless otherwise indicated, implementation shall occur no later than December 31 of each year indicated in Table 2-1. If control of the river is not achievable in the year

indicated, thereby precluding implementation of a specific measure during that year, implementation shall be initiated once control of the river is achieved in the following year.

Except as stated above, any deferral of implementation shall be based solely upon issuance dates of the individual project licenses or any rehearing or appeal identified in Section 2.2.2. If actual license issuance of a given project occurs after the expected date of license issuance, the dates of implementation for that project may be deferred by an amount of time equal to that between the expected date of license issuance and the actual date of license issuance. In the event that rehearing or appeal of specific aspects of the Settlement results in deferral of implementation of some measures, the implementation date of those measures shall be as soon as practical, but no later than December 31 of the year after which resolution of that issue becomes final.

[Table 2-1 has been modified to reflect the issuance date of the four licenses. Accordingly, the table below extends by two years the schedules for the Middle and Lower Raquette and by one year the schedules for Carry Falls and Upper Raquette. Where the revised implementation date has passed, the table extends the date by an additional year.]

Table 2-1
REVISED Master Implementation Schedule
for the Middle Raquette River
(Based Upon Expected License Issuance Dates of Section 2.2.1)

Site	Instream Flow	Fish Passage [3]	Fish Protection	Impoundment Fluctuations	Guide Curve[5]	Baseflow	Recreation	Whitewater
Higley		2003	2011 to 2013 [1]	2002			by 2006	
Colton	Start of Walleye Spawning 2002	2002	2011 to 2013 [1]	2002			by 2004	2002 [4]
Hannawa	2002 [3]	2002	2007 to 2010 [1]	2002			by 2004	2002 [3]
Sugar Island	Start of Walleye Spawning 2002	2002		2002			by 2004	2002 [4]

General: Unless otherwise noted, implementation shall occur no later than December 31 of each year indicated. If control of the river is not achievable in the year indicated, thereby precluding implementation of a specific measure during that year, implementation shall be initiated once control of the river is achieved in the following year. Shaded areas represent enhancement measures the settlement team concluded were not necessary at, or applicable to, the sites indicated.

1. After year 2004, actual year of installation may vary. However, the licensee shall install protection within the timeframe indicated.
2. For the purpose of this table, fish passage shall mean installation of downstream fish movement and plunge pool systems.
3. The existing interim flow shall be maintained until implementation of the permanent instream flow at the time indicated.

4. Usage of whitewater budget may involve releases at this site pending determinations of the whitewater subcommittee.
5. Implementation shall occur starting June 1, 2002.

2.3 RUN-OF-RIVER OPERATION

For the purposes of this Settlement, run-of-river operation is defined as the operation of a single unit, or multi-unit development, which is based on an active storage volume of zero cubic feet at all times; therefore, the instantaneous sum of all releases will equal the instantaneous inflow to the impoundment to the extent practicable.

2.4 RUN-OF-RIVER WITH PONDAGE OPERATION

A run-of-river with pondage operational mode means that a development containing multiple units utilizes the multiple units in conjunction with normal impoundment fluctuations such that outflow fluctuates above and below the instantaneous inflow level at rates which correspond to the most efficient sequence of unit loading. At a minimum, one unit always operates, or water is spilled.

2.5 PEAKING, LOAD FOLLOWING, AND AGC OPERATION

2.5.1 VARIOUS STORAGE AND RELEASE OPERATIONAL MODES

A store-and-release operational mode may be of several different varieties, the common attribute of which is that the mode of operation of the development does not qualify as a run-of-river, or run-of-river with pondage operation.

P Store-and-Release Pulsing

In a store-and-release pulsing mode of operation, a single unit development utilizes normal impoundment fluctuations, but essentially regulates outflow in an on/off cyclic manner which varies in response to the level of instantaneous flow. Operation is in response to inflow and normal impoundment fluctuations and does not necessarily correspond to system peak electric power demands.

P Store-and-Release Peaking

In a store-and-release peaking mode of operation, a single unit development operates in a concentrated time frame corresponding to system peak electric power demand

periods, usually during weekday hours. Operation is curtailed during off-peak, non-generating hours or when normal impoundment fluctuation limits have been reached.

P Store-and-Release Load Following

In a store-and-release load following mode of operation, a single unit development operates in response to system load demands. In this mode, desired hourly megawatt (MW) targets, for developments capable of load following, are scheduled by staff of the System Hydro Control Center (SHCC). The load following operation may result in an instantaneous MW output above or below each hourly target in response to system load demands, with the objective of being at, or near, the scheduled hourly MW target and adhering to applicable impoundment fluctuation constraints.

P Re-regulation

In a re-regulating mode of operation, a single unit, or multi-unit development utilizes normal impoundment fluctuations and the appropriate sequence of units to re-regulate an upstream pulsing, peaking, or load following operation into a steadier round-the-clock flow.

2.7 FLOW RELEASE STRUCTURES

Flow release structures will be designed to minimize adverse impacts to fish moving downstream and be cost effective and reasonable. Final details of designs, including final locations of fish protection and conveyance measures (e.g., plunge pools, piping, etc.), will be based on field inspections and professional judgment of the licensee, the USFWS, and NYSDEC. Installation will be undertaken by the licensee in accordance with the schedule and substantive commitments set forth in Sections 3.0 and 6.0.

2.13 ACCESS

Any access granted or acquired for recreational purposes in the context of this Settlement will be for general public use.

2.15 CARTOP BOAT

For the purposes of this Settlement, a cartop boat is one which requires neither a ramp nor trailer to launch and retrieve.

2.17 PROJECT BOUNDARY COMMITMENTS

The licensee agrees to adjust project recreational facilities and provide an access point thereto such that said facilities, and access, fall on project lands owned by the licensee or, in the event such facilities and access are not now so located, to amend the project boundary so that said facilities and access fall on project lands owned by the licensee, unless otherwise indicated in Section 9.0.

2.19 TERM OF LICENSES

To facilitate future coordinated river basin review for the Raquette River Projects, the common new license expiration date for the Raquette River Projects should be set by FERC at December 31, 2033.

3.0 INSTREAM FLOWS

3.2 GENERAL AGREEMENTS

3.2.1 WALLEYE SPAWNING SEASON

Many of the flows included as part of this Settlement have one, or more, seasonal components. The seasonal component encountered most often is that of a release to accommodate spawning between April and June - particularly in the early spring for walleye. For the purpose of establishing the duration of flows designated for walleye spawning season for the projects on the Raquette River as referenced in Section 3.3, the following criteria shall be used unless modified by mutual agreement between the licensee, NYSDEC, and the USFWS.

3.2.1.1 Start of Walleye Spawning Season

Walleye spawning season will start when water temperature at South Colton [Upper Raquette Project No. 2084] reaches 4 degrees Celsius (39.2 degrees F) for 4 consecutive days after March 15 of each year.

3.2.1.2 End of Walleye Spawning Season

Walleye spawning season will end 30 days after water temperature at South Colton has reached 10 degrees Celsius (50 degrees F) for 4 consecutive days.

3.2.1.3 Location of Temperature Monitoring

The start and end of walleye spawning season at all developments shall be determined via water temperature readings taken at the South Colton Development of the Upper Raquette River Hydroelectric Project [No. 2084]. Water temperature readings shall be taken in the vicinity of the tailrace of the South Colton Development.

3.2.2 FLOW TOLERANCES

All instream flows defined in Section 3.3 are considered nominal flows. That is, it is recognized that the actual release at any given time may be slightly above or below the value indicated. The degree to which a flow will be above or below the value indicated is a function of headpond elevation as a result of normal impoundment fluctuations (see Section 4.0). The licensee shall derive appropriate gate settings for the provision of instream flows at each of the ten developments, based upon the midpoint of the normal impoundment fluctuation of each development. For example, if the normal impoundment fluctuation is 1.0 foot, and the instream flow is 45 cfs, the gate setting to provide 45 cfs shall be based upon a drawdown of 0.5 feet. The instream flow (and the range of nominal flows, in parentheses) is provided within each table in Section 3.3.

3.3 SPECIFIC TERMS OF SETTLEMENT

3.3.3 MIDDLE RAQUETTE RIVER HYDROELECTRIC PROJECT No. 2320

3.3.3.1 Higley Development

P Flow Levels

The licensee shall not be required to provide an instream flow in the bypass reach of the Higley Development.

3.3.3.2 Colton Development

P Flow Levels

The licensee shall maintain the following instream flows, for the duration specified, from the Colton Dam (see Section 6.3.3.1 for discussion of release structures).

Table 3-6
Colton Development
Instream Flow Schedule

Flow Magnitude	Annual Start Date	Annual End Date
110 cfs (100 - 120)	January 1	Start of Walleye Spawning Season
240 cfs with spring spillage (216 - 264) 200 cfs without spring spillage (180 - 220)	Start of Walleye Spawning Season	End of Walleye Spawning Season
200 cfs (180 - 220)	End of Walleye Spawning Season	June 30
125 cfs (113 - 138)	July 1	August 15
90 cfs (81 - 99)	August 16	September 15
125 cfs (113 - 138)	September 16	October 31
110 cfs (100 - 120)	November 1	December 31

P Interim Flows

Interim flows have been instituted at the Colton Development since 1996. The licensee shall continue to provide interim flows of 125 cfs (ice out to September 15), and 75 cfs (September 16 to ice out) until permanent instream flows are implemented as defined in Table 2-1. Reduction of interim flows below these levels will be allowable if caused by operational constraints such as icing or release mechanism problems (see Section 3.4.1).

3.3.3.3 Hannawa Development

P Flow Levels

The licensee shall maintain the following instream flows, for the duration indicated, from the stoplog section of the dam located near the right bank.

Table 3-7
Hannawa Development
Instream Flow Schedule

Flow Magnitude	Annual Start Date	Annual End Date
50 cfs (48 - 52)	January 1	Start of Walleye Spawning Season
90 cfs (87 - 93)	Start of Walleye Spawning Season	June 30
65 cfs (63 - 67)	July 1	October 31
50 cfs (48 - 52)	October 31	December 31

P Interim Flows

Interim flows have been instituted at the Hannawa Development since 1996. The licensee shall continue to provide interim flows of 50 cfs (ice out to September 15), and 35 cfs (September 16 to ice out) until permanent instream flows are implemented as defined in Table 2-1. Reduction of interim flows below these levels will be allowable if caused by operational constraints such as icing or release mechanism problems (see Section 3.4.1).

3.3.3.4 Sugar Island Development

P Flow Levels

The licensee shall maintain the following instream flows for the duration indicated from a minimum flow pipe installed on the powerhouse pipeline just downstream of the pipeline intake.

Table 3-8
Sugar Island Development
Instream Flow Schedule

Flow Magnitude	Annual Start Date	Annual End Date

Table 3-8 Sugar Island Development Instream Flow Schedule		
300 cfs (282 - 318)	January 1	Start of Walleye Spawning Season
400 cfs (376 - 424)	Start of Walleye Spawning Season	June 30
300 cfs (282 - 318)	July 1	December 31

- Interim Flows

Interim flows have been instituted at the Sugar Island Development since 1996. The licensee shall continue to provide interim flows of 125 cfs (year round) until permanent instream flows are implemented as defined in Table 2-1. Reduction of interim flows below these levels will be allowable if caused by operational constraints such as icing or release mechanism problems (see Section 3.4.1).

3.4 EXCEPTIONS AND MONITORING

3.4.1 EXCEPTIONS

Allowances have been made to accommodate circumstances which necessitate the curtailment and/or suspension of any and/or all of the instream flows at the ten developments for which they are being provided. Reasons for same may include, but are not necessarily limited to, the following:

- Maintenance, repair, or reconstruction of project facilities at any hydroelectric project and/or water retaining structure on the Raquette River.

- Maintenance, repair, or reconstruction of nonproject facilities such as roads, bridges, or other structures in, or adjacent to, the river.

- Any emergency situations related to dam safety, human life and property, or rescue.

- "Dry" or "Drought" conditions experienced within the watershed (see Section 5.3.3 [of the new license for Project No. 2330, i.e., the total daily

average outflow from Colton is less than 650 cfs, *and* the elevation within Carry Falls Reservoir, Project No. 2060, is greater than, or equal to, 1357feet]).

Instream flows will be curtailed or suspended for the minimum duration necessary. Flows will be restored as soon as possible after the circumstance for which they have been curtailed or suspended is completed. The licensee may curtail or suspend any and/or all of the instream flows if either of the following criteria have been met:

! The Licensee must consult with appropriate NYSDEC staff in Watertown, NY regarding the need and approval to curtail or suspend any and/or all instream flows. It will be the responsibility of the NYSDEC to notify the USFWS (and the APA as appropriate) of the request. Documentation of the consultation with NYSDEC officials must describe the need for the curtailment and/or suspension, and specify the requested duration of the curtailment and/or suspension.

P If an emergency situation exists where consultation will only slow down or impair the Licensees ability to address immediate dangers related to dam safety, human life and property, or rescue efforts, consultation with the NYSDEC will not be deemed necessary. However, the NYSDEC will be notified as soon as possible of the emergency situation following the curtailment and/or suspension of any and/or all instream flows.

3.4.2 MONITORING

The licensee shall monitor the instream flow provided at each development. Data regarding headpond elevation and applicable gate opening information shall be recorded on a daily basis by the licensee. The licensee shall develop gate opening versus flow relationships, incorporating headpond variations as necessary, for the purpose of determining flow using the information recorded daily. These relationships shall be reviewed periodically, and updated upon any change in the instream flow release structure.

3.5 IMPLEMENTATION SCHEDULE

The licensee shall implement provision of the instream flows specified in Section 3.3 as specified in Table 2-1.

P

4.0 **NORMAL IMPOUNDMENT FLUCTUATIONS**

4.2 GENERAL AGREEMENTS

Normal impoundment fluctuations specified in Section 4.3 shall be defined as the maximum drawdown limit within a given impoundment associated with the operating range necessary to achieve run-of-river with pondage, store-and-release peaking, load following, re-regulating, or store-and-release pulsing hydropower operations. Except as noted in Table 4-1[not part of this order], drawdown limits shall be measured in the downward direction from permanent crest of dam, or top of flashboards if they have been installed. Establishment of the drawdown limit below top of flashboards shall begin after initial recharge of the impoundment following flashboard installation. Water surface elevations higher than permanent crest of dam, or top of flashboards if they have been installed, are considered outside of the normal impoundment fluctuation zone, and variations of same are not considered as a utilization of the normal impoundment fluctuation.

4.3 SPECIFIC TERMS OF SETTLEMENT

4.3.3 MIDDLE RAQUETTE RIVER HYDROELECTRIC PROJECT No. 2320

The licensee shall limit fluctuations within the impoundments of the four developments of the Middle Raquette River Hydroelectric Project as defined in Table 4-2.

Table 4-2
Middle Raquette River Hydroelectric Project
Normal Impoundment Fluctuations

Develop-ment	**Permanent Crest of Dam (feet USGS)**	**Height of Flashboards**	**Normal Impoundment Fluctuation**
Higley	880.6	3.0 foot trippable wooden flashboards	(See Table 4-2a)
Colton	835.0	2.0 foot pneumatic flashboards	0.4 feet
Hannawa	548.5	3.5 foot trippable wooden flashboards	0.4 feet
Sugar Island	470.0	none	1.0 feet

The Higley Development serves dual purposes of providing re-regulation of peaking flows from the Upper Raquette river, as well as providing significant recreational opportunities during summer months. To facilitate these dual purposes, the licensee shall limit impoundment fluctuations at the Higley Development as defined in Table 4-2a.

Table 4-2a
Higley Development
Normal Impoundment Fluctuations

Time of Year	Day of Week	Target Elevation (feet USGS)
Memorial Day Weekend through Labor Day Weekend	10:00 pm Friday through 6:00 am Monday	*By 10:00 pm on Friday* - impoundment to be at, or near, top of flashboards (elevation 883.6). *Over the course of the weekend* - utilize a 2.0 foot drawdown. *By 6:00 am Monday* - impoundment at, or near, 2.0 feet below top of flashboards (elevation 881.6)
Memorial Day Weekend through Labor Day Weekend	6:00 am Monday through 10:00 pm Friday	2.5 foot impoundment fluctuation utilized as needed to facilitate re-regulation (elevation 883.6 to 881.1).
End of Labor Day Weekend to Start of Memorial Day Weekend	all days	2.5 foot impoundment fluctuation utilized as needed to facilitate re-regulation (elevation 883.6 to 881.1).

4.4 EXCEPTIONS AND MONITORING

4.4.1 EXCEPTIONS

Allowances have been made to accommodate circumstances which necessitate exceeding normal impoundment fluctuation limits at any of the developments for which

they are being provided. Reasons for same may include, but are not necessarily limited to, the following:

- Maintenance, repair, or reconstruction of project facilities at any hydroelectric project and/or water retaining structure on the Raquette River.

- Maintenance, repair, or reconstruction of nonproject facilities such as roads, bridges, or other structures in, or adjacent to, the river.

- Conditions warranting a drawdown of Carry Falls Reservoir [Project No. 2060] below elevation 1355 (see Appendix Section 5.4.1 of Project No. 2060 new license).

- Any emergency situations related to dam safety, human life and property, or rescue.

Exceedance of normal impoundment fluctuations will be for the minimum duration necessary. Normal impoundment fluctuations will be restored as soon as possible after the circumstance for which they have been exceeded is completed. The licensee may exceed any and/or all of the normal impoundment fluctuation limits if either of the following criteria have been met:

- The Licensee must consult with appropriate NYSDEC staff in Watertown, NY regarding the need and approval to exceed any and/or all normal impoundment fluctuation limits. It will be the responsibility of the NYSDEC to notify the USFWS (and the APA as appropriate) of the request. Documentation of the consultation with NYSDEC officials must describe the need to exceed the limit, and specify the requested duration of the drawdown.

- If an emergency situation exists where consultation will only slow down or impair the Licensee's ability to address immediate dangers related to dam safety, human life and property, or rescue efforts, consultation with the NYSDEC will not be deemed necessary. However, the NYSDEC will be notified as soon as possible of the emergency situation.

4.4.2 MONITORING

The licensee shall maintain adequate operating records clearly indicating impoundment fluctuations. The monitoring of impoundment fluctuations will be addressed in the development of the streamflow monitoring plan developed subsequent to license issuance (see Section 10.5).

4.5 IMPLEMENTATION SCHEDULE

The licensee shall implement the normal impoundment fluctuation limits specified in Section 4.3 concurrent with the implementation of instream flows at each development, or as otherwise specified in Table 2-1.

6.0 **FISH PASSAGE AND PROTECTION**

6.3 SPECIFIC TERMS OF THE SETTLEMENT

6.3.3 MIDDLE RAQUETTE RIVER HYDROELECTRIC PROJECT No. 2320

The licensee shall provide the following downstream fish movement and protection measures at the four developments of the Middle Raquette River Hydroelectric Project. Where applicable, the licensee shall provide the route of downstream movement coincident with the point of instream flow release at each development (see Section 3.3.3), otherwise downstream movement shall be provided as indicated in Table 6-2, and Section 6.3.3.1.

Table 6-2
Middle Raquette River Hydroelectric Project
Downstream Fish Movement and Protection Measures

Devel-op-ment	**Protection Measure**	**Primary Route of Down-stream Fish Move-ment**	**Conveyance and Collection System**

Table 6-2
Middle Raquette River Hydroelectric Project
Downstream Fish Movement and Protection Measures

Higley	1-inch clear spacing physical barrier installed at the location of the existing trashrack structure.	20 cfs via stoplog section located between intake canal and spillway (see 6.3.3.1).	(1) Roughness reduction of spillway face. (2) Measures to reduce dispersion of the release across spillway face. (3) Release structure empties into a pool of adequate dimensions. No additional modifications required.
Colton	1-inch clear spacing physical barrier installed at the location of the existing trashrack structure.	At least 20 cfs via rehabilitated trash sluice structure (see 6.3.3.1 below).	At the time of rehabilitation of intake structure licensee shall retrofit trash sluice return channel to accommodate fish safe conveyance and collection (see 6.3.3.1 below).
Hannawa	1-inch clear spacing physical barrier installed at the location of the existing trashrack structure at the upstream end of the power canal (see 6.3.3.1 below).	50 cfs via instream flow release structure (see Section 3.3.3.3).	(1) Roughness reduction of spillway face (2) Measures to reduce dispersion of the release across spillway face. (3) Construct plunge pool.

Table 6-2
Middle Raquette River Hydroelectric Project
Downstream Fish Movement and Protection Measures

Sugar Island	None (see 6.3.3.1 below)	300 cfs via instream flow release structure (see Section 3.3.3.4).	Instream flow release structure empties into a pool of adequate dimensions. No additional modifications required.

6.3.3.1 Other Considerations

Higley - An instream flow is not required at the Higley Development. However, the licensee shall provide a 20 cfs release for the purpose of providing a route of downstream movement of fish. The route of downstream movement shall be through the stoplog section of the dam located between the intake canal and spillway.

Colton - The intake structure of the Colton Development is currently scheduled to be rehabilitated in 1997/1998. A butterfly flap gate located immediately adjacent to the pipeline intake serves as a trash sluice. This gate empties to a short channel which merges with the bypass reach. At the time of the intake rehabilitation work, this gate shall be retrofitted to serve as the primary downstream fish movement point. Additionally, the licensee shall provide a plunge pool of adequate dimensions as needed, as well as clear debris in the short channel between the gate and bypass reach. The licensee shall utilize this gate for the provision of at least 20 cfs of the instream flow schedule specified in Section 3.3.3.2 or until the hydraulic capacity of the gate is reached, whichever is greater, at which point the licensee shall utilize secondary gates to provide any remainder of the instream flow. The licensee shall not be required to provide safe fish movement and/or downstream plunge pools at the secondary gates.

Hannawa - Two sets of trashracks exist at the Hannawa Development - one at the upstream end of the power canal, and the second at the downstream end of the power canal. The licensee shall only be required to install the 1-inch protection device at the set of racks at the upstream end of the power canal.

Sugar Island - Due to the small size of the impoundment and the location of the instream flow release structure (downstream of the existing trashracks), the signators concluded that fish protection was not required at the Sugar Island Development.

6.4 EXCEPTIONS AND MONITORING

6.4.1 EXCEPTIONS

Allowances have been made to accommodate circumstances which necessitate the curtailment and/or suspension of the provision of downstream fish movement and/or protection measures at the thirteen developments. Reasons for same may include, but are not necessarily limited to, the following:

- Maintenance, repair, or reconstruction of project facilities at any hydroelectric project and/or water retaining structure on the Raquette River.

- Maintenance, repair, or reconstruction of nonproject facilities such as roads, bridges, or other structures in, or adjacent to, the river.

- Any emergency situations related to dam safety, human life and property, or rescue.

Curtailment or suspension of downstream fish movement and protection measures will be for the minimum duration necessary. Downstream fish movement and protection measures will be restored as soon as possible after the circumstance for which they have been curtailed or suspended is completed. The licensee may curtail or suspend provision of downstream fish movement and/or protection measures if either of the following criteria have been met:

- The Licensee must consult with appropriate NYSDEC staff in Watertown, NY regarding the need and approval to curtail or suspend provision of downstream fish movement and/or protection measures. It will be the responsibility of the NYSDEC to notify the US FWS (and the APA as needed) of the request. Documentation of the consultation with NYSDEC officials must describe the need for the curtailment and/or suspension, and specify the requested duration of the curtailment and/or suspension.

- If an emergency situation exists where consultation will only slow down or impair the Licensee's ability to address immediate dangers related to dam safety, human life and property, or rescue efforts, consultation with the NYSDEC will

not be deemed necessary. However, the NYSDEC will be notified as soon as possible of the emergency situation.

6.4.2 MONITORING

The licensee shall not be required to monitor or measure the movement of fish through the designated movement points or turbines.

6.5 IMPLEMENTATION SCHEDULE

The licensee shall commence the installation of the downstream fish movement and protection measures specified in Section 6.3 as soon as control of the river is achieved in the year indicated for each development in Table 2-1.

7.0 **RECREATION**

7.2 GENERAL AGREEMENTS

7.2.1 ACCESS

Table 7-1 summarizes the existing recreation facilities of each development, as well as the additional facilities to be provided as part of this Settlement. The licensee shall only limit public access to facilities specifically related to hydroelectric generation including, but not necessarily limited to, dams, dikes, gates, intake structures, water conveyance structures, powerhouses, substations, transmission lines, and certain access roads leading to such facilities. The licensee shall continue to maintain the existing facilities listed in Table 7-1, as well as provide the additional facilities listed in Table 7-1 and detailed in Section 7.3.

Table 7-1
Middle Raquette River
Summary of Existing and Proposed Recreation Facilities (a,d)

Site	Existing Facilities	Facilities provided as Part of Settlement

Table 7-1
Middle Raquette River
Summary of Existing and Proposed Recreation Facilities (a,d)

Higley	(1) Boat launch with parking area (c) (2) Picnic facilities (c)	(1) Canoe portage
Colton	(1) Stone Valley hiking trail system (cooperative) (c) (2) Car top boat launch with parking (c)	(1) Canoe portage (2) Whitewater access (3) Car top boat launch with overnight parking
Hannawa	none	(1) Canoe portage (2) Scenic overlook and picnic facilities (3) Red Sandstone Trail - southern terminus (cooperative) (4) Whitewater access (5) Roadside parking
Sugar Island	none	(1) Canoe portage (2) Day use area (3) Red Sandstone trail - northern terminus (cooperative) (4) Whitewater access

a. All existing facilities and facilities provided as part of settlement are planned to be operated under a "carry in - carry out" policy.

c. This existing facility represents a recreation proposal constructed prior to issuance of license (see Middle Raquette River Project 2320 license application, Exhibit E.5 (iv)A.3.a&b).

d. Detailed maps will be provided as part of the development of the detailed recreation plan (see Section 7.2.2).

7.2.2 PLANNING

The description of the additional facilities provided in Section 7.3 are intended to provide a general identification and location of the facility. Detailed planning and siting of each facility shall occur prior to its construction. The licensee shall develop a recreation plan detailing the planning and siting of the additional recreational facilities. The plan for each project shall be completed within one year of license issuance of each project (see Section 2.2). The plan shall be circulated to the RRAC. Additional recreational facilities described in this Settlement for the Middle and Lower Raquette River Hydroelectric Projects are generally consistent with, but supersede, proposals contained in the license applications and subsequent AIR's for each project.

7.3 SPECIFIC TERMS OF SETTLEMENT

7.3.3 MIDDLE RAQUETTE RIVER HYDROELECTRIC PROJECT No. 2320

7.3.3.1 Higley Development

P Canoe Portage

The licensee shall provide a canoe portage around the Higley Dam beginning at the existing picnic area (Big Rock Park) including appropriate directional signage.

7.3.3.2 Colton Development

P Canoe Portage

The licensee shall provide a canoe portage around the Colton Dam. The portage will lead to an upper, whitewater put-in within the bypassed reach, and will continue along the pipeline road to a second put-in below the bypassed reach. Appropriate directional signage will be included.

P Car Top Boat Launch with Overnight Parking

The licensee shall provide a car top boat launch with overnight parking in the vicinity of Browns Bridge located immediately downstream of the Colton tailrace.

P Whitewater Access

Whitewater access shall be provided as specified in Section 8.3.3.1.

7.3.3.3 Hannawa Development

P Canoe Portage

The licensee shall provide a canoe portage around the Hannawa Dam including appropriate directional signage. The canoe portage will follow the Red Sandstone trail until diverting to the put-in location (see below).

P Red Sandstone Trail - Southern Terminus

In conjunction with the Laurentian Chapter of the ADK (and others as appropriate), the licensee shall develop a trail to be known as the Red Sandstone Trail. The southern terminus of this trail shall be located near the Hannawa Dam coincident with the canoe take-out. The trail will extend northward to the Sugar Island Development. The southern portion of the trail and the Hannawa canoe portage will follow the same route.

P Scenic Overlook and Picnic Facilities

In conjunction with the development of the southern terminus of the Red Sandstone Trail, the licensee shall develop a scenic overlook and picnic facilities. The scenic overlook shall be located at a point so as to provide viewing of the falls and gorge which make up the upper stretch of the Hannawa bypass reach. The picnic facilities shall be located in the vicinity of the Hannawa Dam.

P Whitewater Access

Whitewater access shall be provided as specified in Section 8.3.3.2.

P Roadside Parking

To facilitate usage of the above mentioned facilities, the licensee shall develop a roadside parking area in the vicinity of the Hannawa Dam off Mill Street.

7.3.3.4 Sugar Island Development

P Canoe Portage

The licensee shall provide a canoe portage around the Sugar Island Dam including appropriate directional signage. The take out will be located along the left shore of the impoundment upstream of the dam. The portage put-in will also serve as the whitewater put-in, and will include a footbridge over the pipeline plus a trail to the launch point on the left shore of the bypassed reach.

P Day Use Area

The licensee shall develop a day use area with gated access on the large peninsula towards the downstream end of the bypass reach called Sugar Island (also known as Allen's Island). The day use area shall consist of a hiking trail, picnic area, and canoe access. Parking for the day use area will be provided in the vicinity of the powerhouse. The gate allowing access will be closed at night.

P Red Sandstone Trail - Northern Terminus

In conjunction with the Laurentian Chapter of the ADK (and others as appropriate), the licensee shall develop a trail known as the Red Sandstone Trail. The southern terminus of this trail shall be located near the Hannawa Dam. The trail will extend northward from the Hannawa Development following portions of the Hannawa canoe portage. The trail will ultimately pass between the Sugar Island impoundment and Greystone Materials, Inc.'s, sandstone quarry, finally merging with the Sugar Island canoe portage route. The portage will serve as the northern terminus of the trail. Further northward development of the trail towards the Village of Potsdam shall not be required of the licensee.

P Whitewater Access

Whitewater access shall be provided as specified in Section 8.3.3.3.

7.4 EXCEPTIONS AND MONITORING

7.4.1 EXCEPTIONS

Vandalism and destruction is a recognized threat to the existing and additional recreational facilities included as part of this Settlement. If vandalism becomes commonplace, the licensee will present the scope of the problem to the RRAC. The licensee will work with the RRAC to explore measures to address the problem. If the problem persists, the licensee may petition the RRAC to concur with permanently shutting down the facility in question. If the RRAC does not concur and the problem persists, the licensee may consult with FERC in order to address the issue.

The licensee may temporarily shut down any recreational facility. Reasons for same may include, but are not necessarily limited to, the following:

- Maintenance, repair, or reconstruction of project facilities at any hydroelectric project and/or water retaining structure on the Raquette River.
- Maintenance, repair, or reconstruction of nonproject facilities such as roads, bridges, or other structures in, or adjacent to, the river.
- Any emergency situations related to dam safety, human life and property, or rescue.

Temporary shut down of any recreational facilities will be for the minimum duration necessary. Normal operation of the recreational facilities will be restored as soon as possible after the circumstance requiring the shut down is completed.

7.4.2 MONITORING

The licensee shall only be required to monitor the usage of recreational facilities as required by 18 CFR, Subchapter B, Part 8, § 8.11 governing the submittal of the FERC Form 80 documenting usage of recreational facilities.

7.5 IMPLEMENTATION SCHEDULE

The licensee shall construct or otherwise implement all recreational facilities described in Section 7.3 according to Table 2-1.

8.0 **WHITEWATER**

8.2 GENERAL AGREEMENTS

The licensee shall allow for scheduled whitewater releases at the Colton, Hannawa, and/or Sugar Island Developments of the Middle Raquette River Hydroelectric Project. The number and volume of the releases shall be based upon the annual energy loss associated with the releases (whitewater budget).

The licensee shall maintain a flow notification system for the purpose of providing the public with information regarding scheduled releases and/or known spillage events at the Colton, Hannawa, and Sugar Island Developments. To achieve this requirement, the

licensee shall develop an Internet web page as one medium to provide this information. Additionally, the licensee will maintain a dial-up phone system providing verbal flow information as an alternate medium.

8.3 SPECIFIC TERMS OF SETTLEMENT

8.3.2 WHITEWATER RELEASE SCHEDULE

8.3.2.1 Constraints of Scheduled Whitewater Releases

P The licensee shall allow for scheduled whitewater releases at only the Colton, Hannawa, and Sugar Island Developments of the Middle Raquette River Hydroelectric Project. The scheduled whitewater season is designated as July through September. The licensee shall provide scheduled whitewater releases during this period at one, some, or all of these developments according to the whitewater budget determined by the Subcommittee.

P The whitewater budget for years 2000 to 2004 shall not exceed 800 MWh per year. Variations to the initial 800 MWh whitewater budget may be made on a five year basis starting in 2005. The Subcommittee may select a whitewater budget between 400 MWh to 1,080 MWh (see Section 8.3.7).

P Energy losses associated with ramping (see Section 8.3.2.2) shall be included as part of the whitewater budget. Energy losses associated with instream flows shall not be included as part of the whitewater budget.

P To reduce adverse impacts of the flushing effects of the scheduled release on fish and benthic life enhanced as a result of required instream flows (Section 3.3.3), the number of scheduled releases provided in a given bypass reach shall not exceed six releases per whitewater season. This includes all types of releases (full day, half day, evening).

P Releases shall not be scheduled for consecutive days at any development.

P The approximate peak flow of any scheduled release shall be as follows:

Colton ~ 1250 cfs Hannawa ~ 800 cfs Sugar Island ~ 1500 cfs

P Unused portions of the whitewater budget may only be carried over to the following year provided the resulting budget for the following year does not violate any other constraints or ramping rates.

8.3.2.2 Ramping of Scheduled Whitewater Releases

The licensee shall be required to incorporate flow ramping when ascending to, or descending from, the desired peaks of any scheduled release. Energy losses associated with ramping flows shall be included as part of the whitewater budget. The licensee, at its own discretion, shall provide ramping utilizing turbine operations, gate releases, or a combination of both.

Within the Colton, Hannawa, and Sugar Island bypass reaches, instream flows are being provided (see Section 3.3.3). The instream flow required at the prevailing time of year at each development will serve as the starting point of ramping up to the whitewater peak flow. The basic ramping scheme adopts an hourly doubling of the flow when ascending to the peak flow and an hourly halving of the flow when descending from the peak flow. These ratios are approximate since they are subject to equipment limitations.

Recommendations for this basic ramping scheme may be revisited as soon as practical by the Subcommittee (see Section 8.3.1.1), including the NYSDEC and the USFWS, to determine if the ramping times or volumes should be altered. Revised ramping scheme recommendations may be implemented. While the total time duration and flow volume for ramping may be reduced through this process; it may not be increased. This revisitation may result in individual ramping steps being increased or decreased, provided that the total duration and volume do not exceed that which would be required using the standard ramping formula. However, the Subcommittee may choose to recommend maintaining a flow less than the peak flow for longer than required by the ramping scheme if it also corresponds to a desirable whitewater boating flow. (For example, a flow of 800 cfs at Colton has been identified as a desirable whitewater boating flow level in addition to the higher peak flow of approximately 1250 cfs. The Subcommittee may choose to recommend maintaining 800 cfs for an extended period of time while moving towards the peak flow in order to benefit certain boaters. This would not be interpreted as increasing the ramping flow requirements).

It is not anticipated that any revised ramping scheme recommendations will be altered in the future. However, should the Subcommittee desire to alter any revised ramping scheme recommendations, it may do so, provided that the changes are reviewed by, and acceptable to, the NYSDEC and USFWS.

8.3.3 WHITEWATER ACCESS

The following whitewater access points have been identified at the three developments for which scheduled whitewater releases are provided. A detailed description of these

access points will be included in the recreation plan developed for the Middle Raquette River Hydroelectric Project (see Section 7.2.2). In addition, the Subcommittee may review this plan and offer input regarding final siting of access points.

8.3.3.1 Colton Development

Primary access into, and out of, the bypass reach shall be along the existing Stone Valley Trail system. The licensee shall maintain one trail connecting Lenny Road to the main Stone Valley Trail along the right bank of the bypass reach (one which terminates close to the mid-point of the bypass reach) as a formal intermediate access point to the bypass reach. In addition, there are several other marked trails connecting Lenny Road to the main Stone Valley Trail. Appropriate safety and directional signage shall be provided on the maintained intermediate trail, as well as relevant locations on the Stone Valley Trail. General parking shall be coincident with that provided for other recreational facilities detailed in Section 7.3.3.2. Additional parking is available along Lenny Road near the intermediate trail.

8.3.3.2 Hannawa Development

The licensee shall develop one formal access point to the upper portion of the bypass reach. The location of this access point shall be determined at the time of implementation to ensure that safety concerns associated with the falls and gorge are adequately addressed. The licensee shall develop one formal take-out from the bypass reach along the left shore of the bypass reach in the riffle area upstream of the powerhouse coincident with the canoe portage put-in location. All formal access points shall include appropriate safety and directional signage. Parking shall be coincident with that provided for other recreational facilities detailed in Section 7.3.3.3.

8.3.3.3 Sugar Island Development

The licensee shall develop one formal access point at the upstream end of the bypass reach near the pipeline intake. A second access point will be coincident with the canoe access point developed as part of the day use area (see Section 7.3.3.4). All formal access points shall include appropriate safety and directional signage. Parking shall be coincident with that provided for other recreational facilities detailed in Section 7.3.3.4.

8.3.4 SAFETY

The licensee shall maintain permanent signage at key locations along the bypass reaches of the Colton, Hannawa, and Sugar Island Developments to notify the public of fast rising water conditions. Additionally, the licensee shall post temporary signage at the

same locations indicating the date and time of a scheduled whitewater release. The temporary signage shall be posted no less than 7 days prior to the scheduled release. To the extent allowed by law, the licensee shall not be held liable for injuries or death incurred by any persons during a scheduled release or spill event. The licensee shall not be responsible for conducting rescue efforts. In the event of an emergency, the licensee may provide assistance within the limitations of on-site staff.

8.3.5 FLOW NOTIFICATION SYSTEM

The licensee shall maintain a flow notification system for the purpose of providing the public with information regarding scheduled releases and/or known spillage events on a daily basis. This system shall be required for the Colton, Hannawa, and Sugar Island Developments. Scheduled release information will be posted by March 1 of each year and will be maintained through September. Posting of known spillage events will also begin March 1 and will be maintained through Columbus Day.

To achieve this requirement, the licensee will develop an Internet web page as one medium to provide flow information. The licensee, at its own discretion, may expand the Internet web page to include other developments on the Raquette River or any other river, as well as provisional spillage expectations at the three developments on a day ahead basis. Additionally, the licensee shall maintain a dial-up phone system to provide verbal flow information. Over the course of the license term, the licensee may convert the medium used to provide the public with flow information according to appropriate technology of the time.

8.3.6 USE OF SCHEDULED WHITEWATER RELEASES

8.3.6.1 Confirmation System

The licensee shall develop a confirmation system for the purpose of determining anticipated usage of scheduled whitewater release. Confirmations may be made (or canceled) by mail, Internet, or phone. Instructions on “how to make a confirmation” will be provided on the flow notification system. In addition to determining anticipated usage, the confirmation system will be used to identify if the scheduled release, at the Colton Development, should proceed (see below). Scheduled whitewater releases will be provided at the Hannawa and Sugar Island Developments regardless of the number of confirmations made at any time.

At Colton, if confirmations for less than five boaters have been made two weeks prior to the scheduled release, the licensee will post a notice on the flow notification indicating

the number of confirmations made to date. If the licensee has not received five confirmations one week prior to the release, the licensee may exercise the option to cancel the release. If this option is exercised, the licensee shall post same on the flow notification system, and will contact those who have made confirmations. Under these circumstances, the licensee shall not be obligated to reschedule the release.

8.3.6.2 On-site Sign-in System

The licensee shall provide at least one sign-in register at each location of a scheduled release. Whitewater users are encouraged to sign-in at these locations provided by the licensee. The licensee will describe the location of the sign-in registers on the flow notification system and will be responsible for collecting the contents of each register.

8.3.7 MODIFICATIONS TO WHITEWATER BUDGET

An initial whitewater budget of 800 MWh is established for years 2000 through 2004 as detailed in Section 8.3.2.1. Beginning in year 2005 (and every five years thereafter), the Subcommittee may make recommendations to vary the whitewater budget from 400 MWh to 1,080 MWh. At a minimum, the Subcommittee will review the anticipated use and actual use records of the previous five years. The anticipated use records shall consist of documentation of confirmations made (Section 8.3.6.1). The actual use records shall consist of the completed sign-in sheets collected by the licensee at each location (Section 8.3.6.2). Although users are not required to sign-in, they are encouraged to do so, as the sign-in sheets shall serve as the only documented record of actual use of each release.

The Subcommittee shall be allowed to vary the whitewater budget from 400 to 1,080 MWh based upon its review of the use records and other available pertinent data. Upon mutual agreement among members of the Subcommittee, the initial 800 MWh whitewater budget may be increased up to a maximum of 1,080 MWh (six full days each, at Colton, Hannawa, and Sugar Island). Conversely, the whitewater budget may also be decreased to a minimum of 400 MWh (three full days at Colton). All other constraints and ramping requirements specified in Sections 8.3.2.1 and 8.3.2.2 shall apply. Changes made to the whitewater budget shall remain in effect until the next five year review is reached.

8.4 EXCEPTIONS AND MONITORING

8.4.1 EXCEPTIONS

Allowances have been made to accommodate circumstances which necessitate the reduction and/or cancellation of scheduled whitewater releases at the Colton, Hannawa, and Sugar Island Developments. Additionally, circumstances may arise which preclude the licensee from scheduling whitewater releases in a given year. Reasons for same may include, but are not necessarily limited to, the following:

- Maintenance, repair, or reconstruction of project facilities at any hydroelectric project and/or water retaining structure on the Raquette River.

- Maintenance, repair, or reconstruction of nonproject facilities such as roads, bridges, or other structures in, or adjacent to, the river.

- Lack of sufficient confirmations (Colton only - see Section 8.3.6.1).

- "Dry" or "Drought" conditions experienced within the watershed (see Section 5.3.3 [of the new license for Project No. 2330, i.e., the total daily average outflow from Colton is less than 650 cfs, *and* the elevation within Carry Falls Reservoir, Project No. 2060, is greater than, or equal to, 1357feet]).

- Any emergency situation related to dam safety, human life and property, or rescue.

If the licensee cancels a scheduled release for these reasons (with the exception of lack of sufficient confirmations), the licensee shall work with the Subcommittee to make all attempts to reschedule the release during the current calendar year.

8.4.2 MONITORING

8.4.2.1 Monitoring of Flows

The licensee shall not be required to perform instream gaging of scheduled whitewater releases. Relationships associated with unit flow, gate opening, and spillage shall be used to determine ramping and peak flow levels and shared with the Subcommittee.

8.4.2.2 Monitoring of Use

The licensee shall maintain anticipated use records (confirmations) and actual use records (sign-in sheets) (see Section 8.3.6).

8.5 IMPLEMENTATION SCHEDULE

The licensee shall begin implementation of scheduled whitewater releases and the flow notification system no later than year 2000 assuming license issuance in 1999 (see Table 2-1). The licensee, in conjunction with the AWA, may elect to coordinate releases prior to this date for the purpose of testing release mechanisms, ramping techniques, etc. If this option is exercised, the 800 MWh budget of year 2000 will be reduced by the amount used prior to year 2000.

9.0 **LANDS**

9.5 LANDS SUBJECT TO FERC BOUNDARY REVISIONS

[T]he licensee shall include all lands associated with recreation facilities within applicable FERC boundaries if they are located on, or will be located on, lands currently owned by the licensee, but not currently within the FERC boundary. The licensee will modify the appropriate FERC boundaries to include the following facilities:

- Portions of the canoe portage routes at Hannawa (see Section 7.3).
- The intermediate access point to the east bank of the Colton bypass reach off Lenny Road (see Section 7.3.3.2).
- Any portions of the Stone Valley Trail system at Colton not currently within the FERC boundary (see Section 7.3.3.2).
- All lands associated with the development of the Red Sandstone Trail system (see Sections 7.3.3.3 and 7.3.3.4).

If it is determined that some, or all, of the lands associated with any other recreational facilities are not on lands owned by the licensee, the licensee may elect not to include those lands within the FERC boundary, or modify the location of the facility to ensure that it is sited on lands of the licensee. However, the licensee will first pursue working with the owner of such lands to ensure completion of, and access to, the facility prior to considering changing the location of the facility. The licensee shall complete all necessary FERC project boundary revisions by the end of 2004 (see Table 2-1).

9.6 IMPLEMENTATION SCHEDULE

The licensee shall complete all necessary FERC project boundary revisions by the end of 2004 (see Table 2-1).

10.0 **MISCELLANEOUS**

10.5 STREAMFLOW MONITORING

The licensee shall develop a flow monitoring plan in consultation with all signators within six (6) months of FERC license issuance. The flow monitoring plan shall include all gages and/or equipment for the purposes of:

a. determining the stage and/or flow of the Raquette River;

b. determining all other project flows including flows through the turbines and any other bypass/diversion flows; and

c. determining project headpond and tailwater elevation.

The licensee shall keep accurate and sufficient records of the impoundment elevations and all project flows to the satisfaction of the NYSDEC and shall provide such data in a format and interval as the NYSDEC may prescribe. All records will be made available for inspection at offices of the licensee within 5 business days, or in writing within 30 business days, of licensee's receipt of a written request for such records by any of the signators to this Settlement. Furthermore, licensee will provide a 7-day per week contact person to provide immediate responses to questions about abnormal conditions.

All gaging and ancillary equipment associated with the project, including the headpond and tailwater gages, shall be made operational and fully calibrated within 12 months of new FERC license issuance for the respective Raquette River Project.

The flow monitoring plan, including the gage calibration plan, shall be submitted to the NYSDEC for review and concurrence.

Permanent staff gages shall be installed to allow independent verification of headpond and tailwater elevations to the nearest 0.1 foot. Stage versus flow ratings shall be calibrated when rating changes occur, and maintained for these sites. Access to staff gages shall be provided to the NYSDEC, US FWS and/or their authorized representatives.